Spring 2016, Issue 3

RAMPED UP

Editor-in-Chief, Anita Aikins-Afful

Highlights from the First International RAMP Users Meeting

In 2015, the U.S. Nuclear Regulatory Commission (NRC) and its dedicated staff in the Office of Nuclear Regulatory Research (RES), successfully launched RAMP, and hosted its first RAMP users group meeting at NRC Headquarters in October.

Dozens of RAMP members representing several countries —including Japan, South Africa, United Arab Emirates, and China—attended the meeting, and had the opportunity to share their experiences with the codes and to suggest ideas for code improvements directly to RAMP team members.

Attendees also participated in training sessions on the eight available codes. Led by both RAMP project managers and contractors, these sessions provided users with the opportunity to receive comprehensive group training and to gain a better understanding and working knowledge of the radiation protection codes.

The first meeting was so well received that the event will be held semi-annually! We hope to see you in South Africa this coming May, (and in Washington D.C. again in October!

Save the Date

The Spring 2016 International RAMP Users' Meeting

When: May 16-20, 2016
Where: Pretoria, South Africa

The U.S Nuclear Regulatory Commission will host global users for invaluable code training and vibrant discussions. More details to come.

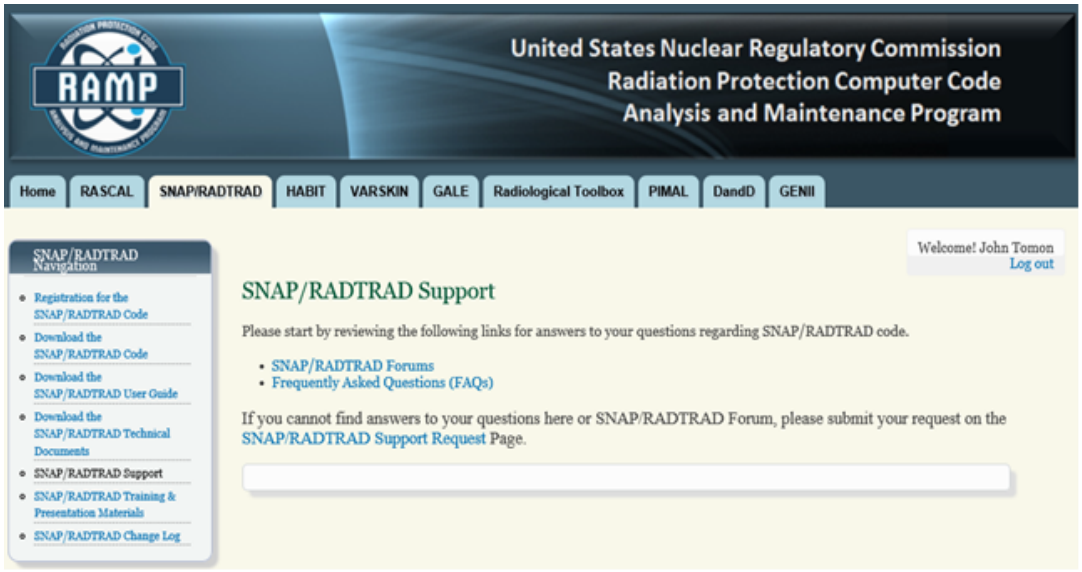
In This Issue

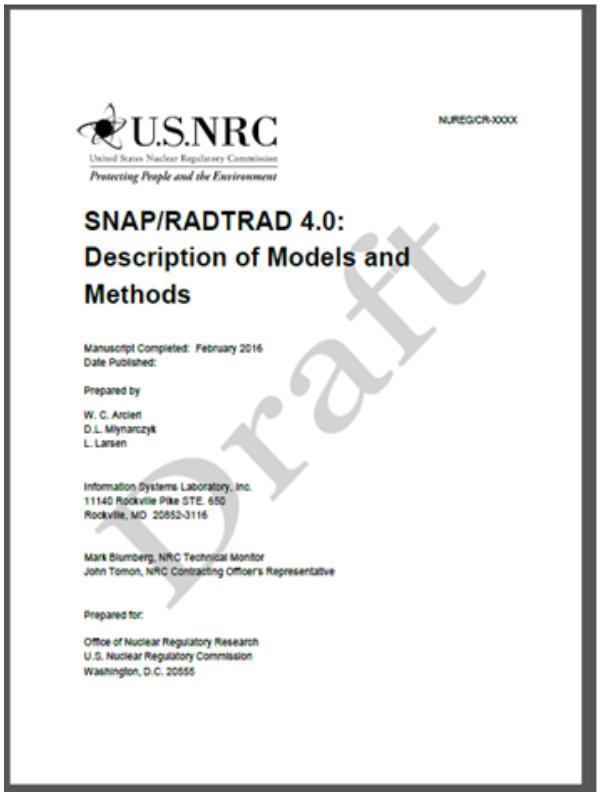
SNAP/RADTRAD Happenings

John Tomon, CHP

Many new changes and updates have been made to the SNAP/RADTRAD Web pages on the RAMP Web site. The SNAP/RADTRAD Development Team has updated and enhanced the "SNAP/RADTRAD Support" page with links to Frequently Asked Questions (FAQs) and RADTRAD User Forum boards. SNAP/RADTRAD users are strongly encouraged to check out the FAQs and to use the forum boards to post questions and issues related to code error (bug) reporting, model questions, and general RADTRAD usage questions. In addition, the SNAP/RADTRAD Development Team has identified changes to the RADTRAD Plugin that should be available to RAMP members via the Applied Programming Technology Inc. SNAP web site soon. The team has also worked to correct minor bug fixes in the RADTRAD-AC and released an update (RADTRAD-AC v4.5.2) that is available on the "Download the SNAP/RADTRAD Code" page. Details on the changes/updates and bug fixes to the Plugin and RADTRAD-AC are available to RAMP members via the "SNAP/RADTRAD Change Log" page.

RAMP members interested in the details surrounding these changes are encouraged to check out the change log Web pages. The SNAP/RADTRAD Development Team has been working tirelessly to resolve comments and edits to the SNAP/RADTRAD 4.0 User's Manual (NURE/CR), which we anticipate will be formally published by the NRC by the end of Spring 2016. The team will continue to make the latest draft version of this NUREG/CR available to RAMP members via the "Download the SNAP/RADTRAD Users Guide" link on the RAMP Web site. Finally, for those RAMP members interested in SNAP/RADTRAD training, be sure to sign up for the training session during the next RAMP Users Meeting in Pretoria, South Africa in May 2016.





RES Participation in Domestic and International Benchmarking Studies of Emergency Response Codes

Tony Huffert, DSA/RPB

During the Fukushima Dai-ichi accident, the NRC staff and other organizations used the *Radiological Assessment System for Consequence Analysis* (RASCAL) computer code to estimate radiological releases and doses to members of the public in the vicinity of the site. Since March 2011, considerable domestic and international attention has focused on the performance and utility of fast-running emergency response codes that are used to inform protective action recommendations during nuclear power plant accidents. When the RASCAL computer code was transferred from the Office of Nuclear Security and Incident Response to RES in September 2013, the RES staff had already begun participating in two concurrent benchmarking studies of RASCAL and other emergency response codes.

One of the benchmarking studies is administered by the Electric Power Research Institute (EPRI) and includes participation by the NRC and three other domestic emergency response code developers. The main goals of this study are to assess the capabilities of each code and to identify opportunities for enhancements in support of emergency planning and response in the United States. A key feature of this study is the direct comparison between RASCAL and the Modular Accident Analysis Program (MAAP) source term modeling capabilities using the Fukushima accident scenarios. Meteorological, airborne radioactivity, and deposition measurements collected during the Fukushima accident are archived in an EPRI database and used in this benchmarking study to check code performance. In September 2014, RES and EPRI signed a Memorandum of Understanding (MOU) in support of this study (ML14226A903), which is scheduled for completion this calendar year.

The second benchmarking study was undertaken by the Organisation for Economic Co-operation and Development (OECD) / Nuclear Energy Agency (NEA) to compare radiological source-term models and to determine why dose predictions differed for the Fukushima-Daichi accident. Twenty organizations representing 12 countries and 2 international organizations participated in this study of 25 codes. Each site participant evaluated a range of hypothetical accident sequences at a U.S. boiling-water reactor (BWR) and a pressurized-water reactor (PWR) (Peach Bottom and Surry, respectively); a French PWR (Golfech); a Swedish BWR (Oskarshamn); and a Canadian CANDU (Point Lepreau); the participants then submitted these evaluations to the study director for analysis. This analysis entailed “building” new sites and plant designs into RASCAL and running the code with both limited and comprehensive data to simulate information flow to the emergency response code operators during an actual event. It also represented an opportunity to compare RASCAL results with those published in the State-of-the Art Reactor Consequence Analyses (SOARCA) for the unmitigated station blackout accident sequence. An NEA report documenting the results of this multi-year study was completed last month.

During the course of these benchmarking studies, RES identified needs for specific code improvements that were subsequently incorporated in the release of RASCAL v4.3.1 in December 2014. These improvements were functional in nature to make RASCAL more useable and to correct coding errors (bugs). Lessons learned include the need to improve modeling of reactors outside the United States and to consider additional graphic displays for calculation results. Overall, RASCAL has proven to be a capable performer in comparison to other domestic and international emergency response codes, and the RES staff gained valuable insights for future code development under the Radiation Protection Code Analysis & Maintenance Program.

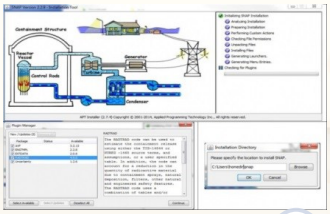
International RAMP Users Meeting

U.S.NRC
Protecting People and the Environment

May 16-20, 2016|Pretoria, South Africa

Training on RASCAL: Emergency Response Code

Training on GENII: Environmental Assessment Code



Training on SNAP/RADTRAD: Design Basis Accident Code

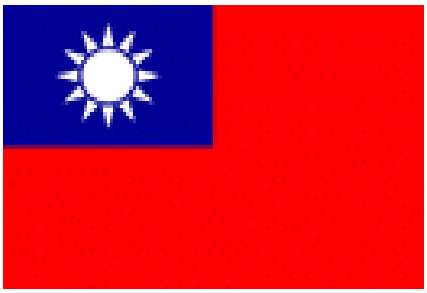
Training, Code Discussions and More….

VARSKIN V5 varskin

Training on VARSKIN: Code for Calculating Skin Dosimetry

Register at http://www.usnrc-ramp.com

Our Newest International Partners



Taiwan

RAMP would like to extend a warm welcome to some of its newest members—TECRO/AEC of Taiwan. We look forward to working with them and welcome their participation in the upcoming 2016 users' meetings.

TECRO – Taipei Economic and Cultural Representative Office,
AEC – Atomic Energy Council

TECRO is responsible for maintaining and developing bilateral relations between Taiwan and the United States. Its Science and Technology Division promotes cooperation between the Republic of China in Taiwan and the United States in the fields of science and technology and assists in cooperative and exchange programs between the scientists of both countries.

AEC, established at the ministerial level under the Executive Yuan, is the sole authority within the Central Government directly overseeing atomic energy-related affairs. AEC's mission is twofold—to develop and enforce regulations and to conduct R&D of nuclear technology.

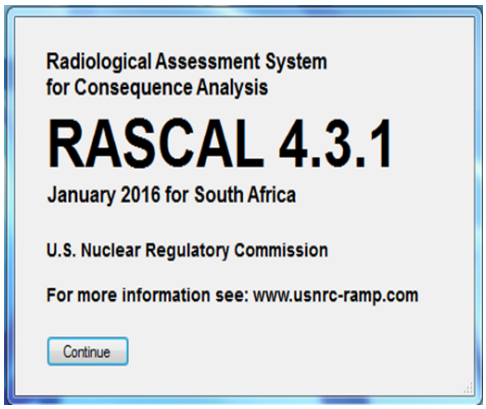
Vietnam

An agreement is underway with the Vietnam Agency for Radiation and Nuclear Safety (VARANS) as they have expressed a strong interest in some of the RAMP codes. Their participation in RAMP will better help in the development of their nuclear infrastructure.

VARANS is an agency under the Ministry of Science and Technology that assists the Minister in fulfilling State management functions related to radiation safety, nuclear safety, security of radioactivity sources, nuclear materials, nuclear units, and nuclear control and in implementing professional activities to fulfill the above-mentioned functions.

What's New with RASCAL *John Tomon, RES/DSA/RPB*

Upgraded services available to all RASCAL users via the RAMP Web site. The updates include the new and enhanced "RASCAL Support" link with links to Frequently Asked Questions (FAQs) and RASCAL User Forum Web pages. RASCAL users are strongly encouraged to check out the RASCAL FAQs and to use the RASCAL forum boards to post questions and issues related to code error (bug) reporting, model questions, and general emergency response and RASCAL usage questions. In addition, the first of the RASCAL Web-based training modules has been added to the "RASCAL Training & Presentation Materials" Web page. This introductory course is for new and first-time RASCAL users and is a great way for new RASCAL users to better acquaint themselves with the purposes and functions of the RASCAL code. The RAMP Team anticipates future releases of more in-depth Web-based training modules that will focus in greater detail on modeling events in RASCAL.



Finally, the RASCAL Development Team (RDT) has been working tirelessly with our international RAMP members to include country-specific site data and new reactor plant models (CANDU) into the next version of the RASCAL code. Stay tuned for more information on the release of the next version of RASCAL and its associated features.

Contact Us

For more information contact us at:
RAMP.resource@nrc.gov

Visit us on the web at:
https://www.usnrc-ramp.com/

Come join us...

The Fall RAMP User Group Meeting will be held on October 17-21, 2016, in Washington D.C.

Introducing...

April Augustine, PMP
PNNL RAMP Program Manager

In 2015, the NRC requested Pacific Northwest National Laboratory (PNNL) participation in the Radiation Protection Code Analysis & Management Program (RAMP).

April Augustine was selected as the PNNL project manager for RAMP. April is a project and task manager in PNNL's Systems Engineering and Integration Division, a U.S. Department of Energy national laboratory. In this role, she is responsible for project planning and authorization as well as coordinating technical leads and subject matter experts to apply more consistent, effective, and efficient program management of PNNL codes for NRC needs. April brings to the role more than a decade of experience in project management as well as Project Management Professional (PMP) certification, and she holds a degree in Business Administration focused in Management and Operations as well as Human Relations.

April's leadership extends beyond the laboratory and into her community as she leads the Black Community Connection (BCC) at PNNL. The BCC is a central resource for staff to foster a greater sense of diversity inclusion and outreach. April is joined by her colleagues in organizing events to rally staff around historical remembrance and cultural celebration.

Meet the New RAMP Administrator

Anita Aikins-Afful, M.S.
Editor, *Ramped Up*

Ms. Aikins-Afful is an Administrative Assistant in the Office of Nuclear Regulatory Research, Division of Risk Analysis. She is a graduate of University of Delaware and Sojourner-Douglass College with an undergraduate degree in Psychology and a Master of Applied Social Sciences. She has many years of administrative and writing experience as well as technical editing and is excited to join Research's RAMP Team.

In the Next Issue of *Ramped Up*...

- Code Updates/Highlights
- International Partners
- Details on Upcoming RAMP Meetings
- RAMP Team Highlights
- What's New in RAMP